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RESOLUTION OF DISPUTES INVOLVING VARIATIONS IN ESTIMATED QUANTITIES

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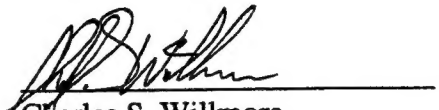

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ABSTRACT

This thesis investigated the legal criteria involved in deciding variation in estimated quantity disputes in construction contracting. It was written by an engineering student and is not intended to be a legal reference document. Legal precedent was researched to determine the rules used by the courts to decide these disputes. Each rule was discussed in detail. Examples of cases were provided highlighting how the courts used each rule. The rules used to decide variation in estimated quantities were found to be consistent between jurisdictions.

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Chapter 1

Introduction

Construction contracts generally indicate the exact scope of work to be performed. However, in cases where the exact quantities of work are unknown, the contract may contain an estimated quantity, which represents a reasonable presumption of the amount of work that will be required. A common example of this is when the contract includes subsurface work and the site investigation is limited because of terrain, funding, or the need to complete the project. Another instance where a contract may contain an estimated quantity is when an owner intends to accomplish as much work as possible given limited funding, and will determine the actual quantity of work based on the unit price of the successful bidder. In these types of instances the designer, or owner, may elect to use an estimated quantity to form a basis for evaluating bids.

Because disputes concerning variations in estimated quantities are not widespread, most construction professionals are not familiar with the legal principles or rules of interpretation involved in their resolution. These result in contract provisions that do not serve the intended purpose and disputes that have to be resolved in litigation, rather than at the field level.

Problem Statement

The legal resolution of a dispute based on a variation in an estimated quantity is not well understood by construction professionals. This leads to contracts that are not properly constructed to convey the intent of the owner and can lead to unnecessary

litigation. Also, the most appropriate types of contractual vehicles for conveying intent and allocating risk are not understood and can lead to unnecessary litigation.

Objective

The objective of this thesis is to develop a guide for construction professionals to assist in avoiding and resolving disputes involving variations in estimated quantities. The guide will identify the rules used by the courts to resolve disputes and will examine contract provisions and formation principles that impact the dispute resolution process.

Scope

Case law research was performed primarily from reported appellate decisions available in the Penn State library system. Supplemental legal treatises and other materials were consulted as an overview to the problem. Cases involving disputes over variations in estimated quantities made up the majority of the cases reviewed, however, other cases that reinforce the rules of interpretation were also reviewed.

This thesis was researched and written by a construction professional for construction professionals. It is not meant to serve as a legal treatise, or a basis for claims, only to provide insight into the resolution of disputes at the field level.

Methodology

A thorough review of literature was conducted. Legal treatises and industry publications were researched to determine the existing knowledge concerning disputes about variations in estimated quantities. These documents led to key cases that were then researched to determine the existing rules that apply and the way the judicial system applied those rules. Key cases were all shepardized. (Shepardizing is a means of determining cases that cite the subject case as precedent.) Numerous cases from various jurisdictions were reviewed to determine the consistency of the rules applied by the appellate courts.

In developing the guidelines used by the courts, contract formation principles and the effects of including standard provisions were also investigated to determine methods of structuring a construction contract to allow parties to convey intent and properly allocate the risk associated with the performance of the work.

Background

In contracts where the exact quantities are not known, or can not be calculated, estimated quantities are often used to provide a basis for soliciting and evaluating competitive bids. Variations from the estimate can lead to disputes. An example of an early dispute involving an estimated quantity was an 1871 contract to provide an estimated 840 cords of wood at a specified unit price. In that case, only 40 cords of wood were actually required and although the contractor had cut 880 cords, he had done so before the contract was signed. The U.S. Supreme Court held that he was only due compensation for the 40 cords required.[1]

This is an example of where a good faith effort to perform a contract resulted in damage for one of the parties due to a variation in an estimated quantity. While it is a supply contract and this thesis will focus on construction contracts, the views of the court in that case are applicable and will be discussed in chapter 2.

Typical provisions in contracts with estimated quantities

Historically, the provisions governing variations in estimated quantities varied depending on the particular circumstances involved. Recently, the provisions that govern variations have become standardized to a degree, especially in contracts which involve public entities. Public entities are generally required to include provisions for dealing with variations in estimated quantities if the contract contains an estimate that is to be compensated at a unit price.

During the course of research, it was discovered that there is little difference between the way courts interpret a contract involving public or private entities.

Public Contracts

The Federal Acquisition Regulations (FAR) stipulate that Federal construction contracts that contain estimated quantities include FAR part 52.211-18, Variation in Estimated Quantity, to provide a method to equitably adjust the contract unit price in the event that the actual quantity varies by more than 15% from the estimate. How the courts have interpreted the federal Variation in Estimated Quantity (VEQ) clause will be discussed in Chapter 2. The clause is provided in its entirety in Appendix A.

Other public entities, such as State or local governments, frequently have provisions for adjusting the contract price based on a variation in a quantity of work for which there was a unit price bid. For example, in Pennsylvania, section 63.131(e) of the General Services regulation, provides:

> (e) If unit prices are stated in the contract documents or subsequently agreed upon, and if the quantities originally contemplated are so changed in a proposed change order that application of the agreed unit price to the quantities of work proposed will create a hardship on the Department or the contractor, the applicable unit prices shall be equitably adjusted by change order to prevent such hardship.

Other states that were researched had similar provisions governing the use of estimated quantities in construction contracts.

Private Contracts

In construction contracts between private parties that contain estimated quantities, the Engineers Joint Contract Documents Committee (EJCDC) provides a clause for equitably adjusting the contract if:

> ...the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement

Also, the American Institute of Architects (AIA) provides the following clause in AIA document A201-1997:

> 4.3.9 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

The full clauses are included in Appendix A. However, in the private sector, the parties are free to determine the terms of their agreement.

Improving variation in estimated quantity dispute resolution and prevention involves understanding the methods of recovery and the various methods of writing a contract. The purpose of this thesis is to determine how the courts view variations in an estimated quantity and to determine at what point a variation becomes a breach of the contract necessitating a reformation of the contract.

First, one must look at what an estimated quantity is and why it would be used in a contract. Then it is necessary to determine how the courts treat the contractual provisions that pertain to the estimated quantity. Finally, there must be some understanding of when a variation falls outside the contractual provisions and what remedies are available.

Organization

This thesis will be organized by two categories of dispute resolution. The first part covers those variations that can be resolved under the provisions of the contract. Depending on the language of the contract and the extent of the variation, a variation can be dealt with under an express provision, the differing site condition clause, or under the changes clause. The second category to be discussed will be those variations that are resolved outside the provisions of the contract. This involves variations where there was a misrepresentation or a mutual mistake.

This thesis is organized into four chapters. Chapter 2 deals with the resolution of disputes according to the terms of the contract. Chapter 3 deals with disputes that

are outside the scope of the contract and require reformation in equity of the contract.

The final chapter is the summary and conclusions.

Chapter 2

Variations With-in Contract Provisions

There are several reasons why an owner would elect to use an estimated quantity in a construction contract. One reason may be that there is a limited amount of time to perform a site investigation and rather than pay a large contingency fee, the contract will state an estimated amount of work for bidders to consider as part of the bid. This type of contract will usually stipulate that the bid unit price will be paid for actual quantities rather than the estimate, and may express a range for which the bid unit price is applicable. Another reason for using an estimated quantity in a contract may be that funding for a project is limited and the owner would like to maximize the amount of work done within the available funding. The owner then has the option of varying the actual amount of work depending on the unit price of the successful bid.

Estimating a quantity and obtaining unit prices from prospective bidders enables the owner to evaluate the bids on common grounds. It also gives an owner the added benefit of procuring a competitively bid unit price in the event that the estimated quantity varies within a reasonable range. This chapter focuses on how the courts use the provisions of the contract to resolve disputes over variations in an estimated quantity.

Overview

When an owner uses an estimated quantity in a contract, the assumption is that the estimate is a good faith effort to depict the actual conditions. To hold otherwise

would imply that there was some element of fraud and this thesis did not investigate those situations where allegations of fraud were part of the dispute. When a contractor submits a bid containing unit prices, there is also a risk of an "unbalanced bid." This is a bid where the contractor realizes that the estimates in the contract are erroneous and weights the unit prices to take advantage of the error. This thesis did not investigate those situations, focusing instead on the interpretation of the contract provisions as written. Considering the possibility of an unbalanced bid, in 1992 the Court of Special Appeals of Maryland stated in Genstar Stone Paving Products Co. v. State Highway Administration that:

> Should those officials (authors of the contract) conclude that neutralization of the vice of unbalanced bids can best be accomplished by the de novo repricing of excess or short-fall procurement under an estimated quantity contract, they can readily adopt language to that end.[2]

This chapter begins by discussing the way contracts can be structured when using an estimated quantity. It then discusses the established rules of interpretation as they apply to disputes concerning a variation in an estimated quantity, and how the courts apply those rules. It also deals with those contracts where there is an estimated quantity in the contract, but no specific provisions for dealing with variations in the estimate. When a variation occurs under this option, recovery may still be available if the contract contains a clause similar to a differing site or changed conditions clause and the contractor can prove that a differing site condition existed.

Contract structure

An important consideration when resolving a dispute over a variation in an estimated quantity is the structure of the contract. In construction contracts involving work where the exact quantities or conditions are not known, there are three basic options for distributing the risk of those unknown conditions. The first option is to gather no information and let the contractor assume the risk for the existing conditions based on their own investigation or knowledge. The second option is to gather limited information, supply it to the contractors, and include disclaimers as to the accuracy of the information in the contract. The third option is to make the gathered information part of the contract and stipulate that the contractor will be equitably compensated if the conditions differ materially from what is indicated

Furthermore, when an estimated quantity is used in a contract, there are two methods for structuring the compensation for the work. The most common method is to use the estimated quantity times the unit price to calculate the bid amount and then pay for the actual quantities of work done. The other method is to have a lump-sum contract that includes an estimated quantity, and include disclaimers as to the accuracy of the estimate. Using the latter method places more of the risk on the contractor, however, significant variations are more likely to lead to a dispute.

Recovery under express provisions

Often when there is an estimated quantity in a contract, the contract will contain a specific provision for dealing with variations in that estimate. While it would seem that likely that if there were a specific provision of the contract that dealt with a

variation in the estimated quantity, there would be few disputes which arose when a variation occurred. This is not always the case. Often the contractor will claim that the variation in the estimated quantity was "extra work" and that they were entitled to be equitably compensated for the actual cost of performing the work, regardless of what was bid.

What were the intentions of the parties

In these cases, the first course of action to resolve the dispute is to determine the intent of the parties at the time they entered into the contract. To do this one must first look at the language of the provision and read the contract as a whole. A provision which governs a variation in an estimated quantity will not be read to negate the other provisions of the contract.[3] The court can also use the actions of the parties during the performance of the work to determine the intent. When it is unclear as to what the intentions were, or there is more than one reasonable interpretation, the courts have resolved the dispute using the established rules of interpretation.

Determining the intentions of the parties at the time the contract was formed is the most important factor in resolving a dispute concerning a variation in the estimated quantity. To do this, the courts look at the language of the contract, the actions of the parties during performance, the industry standards for the type of work being performed, and any relevant agreements made prior to entering the contract or during the performance of the contract.[4] This thesis deals only with the provisions concerning an estimated quantity, although the rules of interpretation apply to the entire contract.

Standard Rules of Contract Interpretation

The rules of contract interpretation are well defined by the courts. As the following examples will demonstrate, the interpretation of a provision governing variations in an estimated quantity follows these accepted rules.

Contract terms will be given their plain meaning

When a contract contains an estimated quantity and further contains a specific provision for dealing with the actual quantities of work performed, the courts have held that the language in the provision shall be given its plain meaning.

In St. Joseph Loan & Trust Co. v. Studebaker Corporation, the contractor was under contract to build a hill road and race track on Studebaker's proving grounds. The contract included the following schedule for compensation:

Item	Est Qty	Unit	Description	Unit Price	Total
1-H	25,350	CY	Hill road excavation	.50	12,665
1-S	100,000	CY	Track excavation haul average 2500 ft	.70	70,000
2-H	200	CY	Special borrow	.50	100
2-S	200	CY	Special borrow	.70	140
2-B	60,000	CY-sta	Overhaul	.02	60,000

The contractor argued that the word "average" was used by the parties in the sense of "maximum", and that the word "overhaul" was erroneously used in item 2-B instead of "haul over" and it was intended by the parties to mean any haul. Under that interpretation, the contractor argued that the owner was obligated to pay seventy cents for each cubic yard of earth excavated from the race track and hauled not over 2,500 feet, and in case any of the earth excavated from the race track was hauled more than

2,500 feet, they would receive an additional sum of two cents for each cubic yard for each 100 feet the earth was hauled in excess of the 2,500 feet.

The court found for the owner and held:

> "There is no evidence to support the contention that the parties used the word "average" in the sense of maximum, and they are not synonymous in any respect. We see no reason why the word "average" should not be given its plain, ordinary meaning, and when used in the combination of words and figures, "excavation haul average 2,500 feet 70 cents per cubic yard," we think it means that the owner was to pay the contractor seventy cents per cubic yard for each yard excavated where the average haul of the entire amount did not exceed 2,500 feet." [5]

Although the contractor may have in fact intended to contract for the meanings that were argued, it is a well established rule of contracting that terms will be given their plain meaning. This is further evidenced by the 1877 U.S. Supreme court decision Brawley v. U.S., where the court held that:

> Previous and contemporary transactions and facts may be very properly taken into consideration to ascertain the subject matter of a contract, and the sense in which the parties may have used particular terms, but not to alter or modify the plain language which they have used.[6]

Contract to be read as a whole

Another important principle in interpreting a contract is that an interpretation in which all parts of the contract are in effect will be favored over one that makes a part of the contract unnecessary. 17A C.J.S. Contracts § 297 states that "...a contract must be construed as a whole and whenever possible, effect will be given to all of its parts."[7]

In Baton Rouge Contracting Co. v. West Hatchie Drainage Co. the contract was for channel improvement work and the bid schedule included site clearing at the

unit price of $189 per acre. The estimate of clearing for the entire project was 422 acres and was calculated by using the average widths of the areas of the main channel, laterals, and spur inlets. The measured actual area cleared was 442 acres.

The contractor submitted a claim for clearing 549 acres, arguing that they should be compensated for "all acres embraced within the typical sections shown on the drawings as the area to be cleared, regardless of whether it was necessary for the entire area to be cleared."

The court denied this claim on the basis that if that interpretation were used, "many of the contract provisions would serve no useful purpose." For example, the contract provided that areas to be cleared would be marked by "stakes, flags, tree markings, or other suitable methods." If the contractor's argument was valid, and compensation was to be based on the areas shown in the plans, this provision would be unnecessary. The contractor was compensated at the contracted unit rate for only the 442 acres actually cleared.[8]

In St. Joseph v. Studebaker, the court also used this principle when deciding what the intention of the parties was at the time the contract was entered into.

The court reasoned that the interpretation argued by the contractor would render items 2-H, 2-S and 2-B of the bid schedule unintelligible.

Ambiguous terms construed against the drafter

If a provision for a variation in the estimated quantity contains terms which can be reasonably interpreted in more than one way, the terms will be interpreted against the party that drafted them. The following example is illustrative of this rule.

In Baton Rouge v. West Hatchie, the contractor was to construct approximately 40 miles of channel improvement work on a drainage canal. The general provisions of the contract included the following clauses:

> 3. Changes in the work
> "The Contracting Officer may, at any time, by written order, and without notice to the sureties, make changes in the drawings and/or specifications of this contract if within its general scope. If such changes cause an increase or decrease in Contractor's cost of, or time required for, performance of the contract, an equitable adjustment shall be made and the contract modified in writing accordingly."
>
> "28. Quantity Variations
> (a) Where the quantity of work shown for an item in the bid schedule, including any modification thereof, is estimated, no adjustment of the contract price nor of the performance time shall be made for overruns or underruns which are within 25 percent of the estimated quantity of any such item.
> (b) For overruns of more than 25 percent, the Contracting Officer shall re-estimate the quantity for the item, establish an equitable contract price for the overrun of more than 25 percent, adjust contract performance time equitably, and modify the contract in writing accordingly; this clause to thereafter be applicable to the total re-estimated item quantity.
> (c) For underruns of more than 25 percent, the Contracting Officer shall determine the quantity for the item, establish an equitable contract price therefor, adjust contract performance time equitably, and modify the contract in writing accordingly."

A substantial portion of the original contract was the construction of 75 spur inlets along the channel, of which 61 were moved to locations other than those originally shown. There was also a modification issued to construct an additional 72 inlets. The unit price in the contract for channel excavation was $0.1972 per cubic yard.

The contractor argued that 48 of the moved inlets and the additional 72 inlets were located in areas which increased the cost of construction and sought to increase

the unit price to $0.4545 per cubic yard for the 65,966.4 cubic yards involved in their construction. The contractor's interpretation was that the changes were made pursuant to paragraph 3 above.

The project engineer agreed that the additional inlets were more expensive to construct than those shown and issued a contract modification for 54 of the 72 additional inlets. (75% of the additional 72) The project engineer's interpretation was that the additional quantity of excavation was in relation to the number of spur inlets, and based the equitable adjustment on paragraph 28.

Upon review of the contract, the court found that there was an item in the bid schedule for channel excavation, however, there was no separate item for spur inlets. If the owner's interpretation were used for the additional 72 inlets, the additional quantity of 65,966 cubic yards did not exceed the 25% threshold established and therefore there was no reason for adjustment in the unit price. The court determined that paragraph 28 was not applicable to spur inlets as a separate item and in accordance with the rules of contract interpretation, held that:

> "To the extent that a contract is susceptible of two constructions by reason of doubt or uncertainty as to the meaning of ambiguous language, it is to be construed most strongly or strictly against the party by whom, or in whose behalf, the contract was prepared." [9]

On this portion of the claim, the court found for the contractor and held that paragraph 3 was deemed to be the governing provision for the additional 72 inlets. The contractor was compensated at the rate of $0.4545 per cubic yard.

However, with respect to the 61 inlets of the original contract which were moved after award, the court held that since the contract provided that the spur inlets

were to be excavated at "locations designated on the drawings or at locations designated by the engineer", the location changes made by the engineer were within the contract. This portion of the claim was denied and the contractor was compensated at the contract rate of $0.1972 per cubic yard.

Specific provisions govern over general

Another established rule of contract interpretation is the rule of precedence which states, in part, that specific provisions will govern over general. The following example is illustrative of how this rule applies to provisions that govern variations in estimated quantities.

In Graham v. Commonwealth of VA, Graham Brothers entered into a contract with the State Hospital Board of the Commonwealth to construct a kitchen-cafeteria building for a hospital in Petersburg, VA. The excavation work for the project was covered under two areas in the contract specifications: (1) In connection with the building structure under the heading "Excavation" comprising "Stripping, Excavation, Drainage, Shoring and permanent sheet piling, Filling and Backfilling"; and (2) In connection with areas where roads were to be constructed under the heading "Stripping and Grading". The contract included the following specific provision:

> "Unstable Materials: Where materials encountered within areas upon which roads are to be constructed are unstable, such as mud, muck, frozen material or highly organic material, the owner may make any tests at his own expense to determine CBR ratio. Any additional excavation and fill will be paid for in accordance with unit prices agreed upon."

The contract unit price for excavation and backfill was $15 per cubic yard. The general provisions of the contract included the following Changes clause:

> 38. Changes in the Work:
> (a) The Owner may at any time, by written order, and without notice to the sureties, make changes in the drawings and specifications of this contract and within the general scope thereof....In making any change, the change or credit for the change shall be determined by one of the following methods as selected by the Owner.
> (1) The order shall stipulate the mutually agreed price which shall be added or deducted form the contract price.
> (2) By estimating the number of unit quantities of each part of the work which is changed and then multiplying the estimated number of such unit quantities by the applicable unit price (if any) set forth in the contract or other mutually agreed unit price.
> (3) By ordering the Contractor to proceed with the work and to keep and present in such form as the Owner may direct a correct account of the cost of the change together with all vouchers therefor...

During the course of the contract, the Commonwealth issued a change order to remove and replace 277 cubic yards of unstable material at a unit rate of $3.50 per cubic yard. The change order was issued pursuant to the Changes clause, paragraph 38 above. The contractor performed the work, but did not agree to the price of $3.50 per cubic yard set forth in the change order. The contractor claimed that the unit price for the change should be the contractual unit price of $15 per cubic yard.

The Commonwealth argued that under section 38 (a)(2) of the General Conditions, they had the right to select the method of compensation. Graham argued that the Specific Provision in the contract covering "unstable material" governed and the compensation should be the amount agreed to in the contract, or $15 per cubic yard.

The Supreme Court of Appeals of Virginia held in part that:

> "The choice of methods of compensation provided in section 38(a) is not applicable to the excavation and filling for which this action was brought, for the reason that, as noted, the specifications specifically provide with respect to "unstable materials" that any additional excavation and fill "will be paid for in accordance with unit prices agreed upon," and the unit prices agreed upon, and the only ones agreed upon for excavation, are those set forth in the Agreement of $15 per cubic yard.
> If it be doubtful whether the specific provision of the specifications and the "Form of Agreement" or the provisions of section 38(a) are applicable to the plaintiffs' claim, the plaintiffs are entitled to have the doubt resolved in their favor and against the defendant, the author of the instrument.
> Furthermore, the contract itself in section 2(d) of the "General Conditions of the Contract" provides that "In the case of discrepancies between the Contract Documents, the Specifications shall take precedence over the Drawings and over the General Conditions, and the Agreement shall take precedence over the Specifications, the Drawings and the General Conditions."[10]

The contractor was compensated at the contractual rate of $15 per cubic yard for the additional 277 cubic yards.

Federal Variation in Estimated Quantity Clause

In Federal construction contracts, regulations require that the "Variation in Estimated Quantity" (VEQ) clause contained in appendix A be included. The clause states that the estimated quantity may vary by up to 15% without allowing either party an adjustment of the bid unit price. When the quantity variation is outside this range, the courts have interpreted the clause to mean either party can request that an equitable adjustment be made to the unit price based solely on the change in costs due to the variation.

This interpretation was first stated by the courts in Victory Construction Co. v. U.S. in 1975. In that case, the contract was to modify existing flood control structures

along the Mississippi River and included estimated quantities for various portions of the work. The contract contained the VEQ clause that allowed the unit price to be adjusted for quantities over 115% of the estimated quantity. During the course of work, 5 of the items of work were significantly higher than the estimated quantities and the government, pursuant to the VEQ clause, issued a modification adjusting the unit prices downward for those quantities in excess of 115% of the estimates. The Government based their adjustment for the excess units on the actual costs of the work plus a reasonable profit, without considering what was originally bid.

The contractor argued that this was an improper application of the VEQ clause. They argued that any adjustment of the unit price under the VEQ clause had to be based solely on cost economies realized by the increase in volume, not on actual costs. The contractor argued that there had been no decrease in the unit price due to the excess quantities, and therefore they should be paid the contract unit price.

The Court of Claims held:

> To secure a reduction in contract unit price for those quantities in excess of 115 percent of the estimate, the Government was required in this instance to demonstrate by a preponderance of the evidence that the reduction sought represented a "decrease in costs due solely to the variation above 115% of the estimated quantity."[11]

This ruling appears to hold that regardless of actual costs, any adjustment in the unit price for quantities outside 85 – 115 percent of the estimate, must be based on cost changes due solely to the variation in quantity. In other words, the unit price can only be adjusted if economies of scale are realized because of the excess quantity.

In 1992, the U.S. Claims Court appeared to revise the Victory decision in Burnett Construction Co. v. U.S. This contract was for the construction of 13.55 miles

of grading, drainage, and asphalt surfacing and included an estimated quantity of 7,500 units of watering. (1 unit = 1,000 gallons) The contractor bid $5 per unit and the actual quantity required to complete construction was 17,266 units. The contractor claimed it had made an accounting mistake in computing its original bid unit price and per the VEQ clause, requested an adjustment of the unit price for the quantity in excess of 115% of the estimate, or 8,641 units.

The Government cited Victory and argued that the unit price should only be adjusted if the contractor could demonstrate that the increase in cost was due solely to the increase in quantity. The contractor acknowledged that due to its own mistake, it had underbid the work, however, it held that the VEQ clause allowed an equitable adjustment based on the difference between actual unit costs, $35 per unit, and the contract unit costs, $5 per unit. The court agreed with this argument in spite of Victory and allowed the contractor to recover for the difference between the bid price and actual unit costs for the quantity of work over 115% of the estimate.[12]

On the surface, this appears to contradict the Victory ruling, which held that the adjustment should be based on showing a difference between the actual unit costs of the estimated quantity and the actual unit costs of the excess quantity. The court rectified this apparent discrepancy by stating that in Victory, the Court of Claims merely rejected the method of determining the downward adjustment, not that an adjustment could not be made.

This apparent discrepancy was clarified in 1993 in Foley v. U.S., where the clause was again the center of a dispute. In this case, the Court of Appeals rejected the interpretation of the VEQ clause in Burnett and reinforced the decision in Victory. The

Government sought to reduce the unit price for sludge removal from $308 per ton to $295 per ton based on the contractor's actual costs plus a reasonable profit for 16,347.51 tons of sludge removed above 115% of the estimate. The contractor claimed that there was no reduction in unit costs due solely to the excess quantity and it was due the bid unit price of $308 per ton.

The Appeals Court upheld the contractor's claim and awarded compensation at the bid unit price of $308 per ton. The Victory decision was reaffirmed when the court held that:

> The VEQ clause requires an equitable adjustment to be based upon any increase or decrease in costs. To adopt the Government's position in this case would require an adjustment in the contractor's unit profit, even where the costs remained constant. The express language of the clause precludes an equitable adjustment based on anything other than the contractor's costs.[13]

In a similar case, Shannon v. Clement-Mtarri Co, the court of appeals upheld the precedent set by Victory, even though it resulted in a windfall for the contractor. In that case, the contract was for the closure of 23 contaminated sites and included an estimated quantity of 200 units of dewatering. In its unit price of $360 per unit, the contractor had included overhead costs so that in the event of a delay period due to extensive rains, when no other work was occurring, the contractor would still recover overhead costs. During the contract there were heavy rains and a large snowfall that resulted in the removal of 3,923 units of water.

The court, based on the Victory precedent, ruled that the contractor was entitled to the contract rate of $360 per unit for the excess quantity. In a concurring opinion, one of the judges held:

> The contractor and the government made a bargain respecting a specific estimated quantity, subject to a 15% variation above or below that amount. Anything beyond that is open to equitable adjustment. A change in costs due solely to that variation means the costs of raw material, labor, and other costs incurred solely be the variation, and the equitable nature of the adjustment requires a reasonable profit. Thus, if we were writing on a clean slate, the VEQ clause should be interpreted to require a determination of the net increase or decrease in total cost resulting from the variation, rather than a change in unit cost. The parties did not bargain for, nor does an equitable adjustment permit, a windfall such as can occur under Victory or the majority's independent interpretation of the clause. I therefore would affirm only on the basis of the precedential authority of Victory.[14]

Recovery under Other Contract Provisions

Recovery for a variation in an estimated quantity can also be had under other contract provisions. In Chernus v. U.S., the court held:

> The provision in the contract to the effect that estimates made in the invitation for bids for a contract on a unit price basis are only estimates and not guaranteed amounts, does not cancel out of the contract the further provision which promises a modification of the contract to conform to unforeseen subsurface or latent conditions or "unknown conditions of an unusual nature, differing materially from those ordinarily encountered."[15]

One such method for recovery under the terms of the contract is when it can be shown that a variation resulted in "extra work". This can occur where a limited subsurface investigation is accomplished and then an estimate is made as to the nature of the entire project area. A common reason for claims outside the variation provision is that there was a differing site condition. This usually involves a material change in the character of the estimated work. A slight variation in an estimate will not automatically result in "extra work" or a differing site condition that warrants anything other than the contractual unit price. The courts have generally held that absent express

statements, a 10 – 15 percent variation in an estimated quantity is reasonable. Variations significantly higher than that will be discussed in chapter 3.

Recovery under DSC clause

When the contract does not contain an explicit provision to deal with variations from an estimate, a contractor may be able to recover if the contract contains a changed or differing site conditions clause. In order for a contractor to recover under this premise, the contract must contain a differing site condition clause. If a variation occurs, either in the quantity of work or the character of the work, a contractor may seek recovery for a Type I differing site condition. The rules for recovery under a differing site condition have been well documented and are included in appendix B.

When a variation does not constitute a differing site condition

When a contract contains an estimated quantity with no provision for dealing with a variation in that quantity, the majority of the risk is placed on the contractor and variations from that estimate do not automatically constitute a differing site condition. In fact, an estimated quantity with specific disclaimers that reinforce that the work shown is only estimated, are seen by the courts as making the standard for establishing that a differing site condition existed higher. The following examples illustrate this point.

In Dravo Corporation vs. Commonwealth of Kentucky, the contract drawings included an estimated 89,354 lineal feet of steel piling for the construction of bridge abutments. The unit prices established in the contract were $6.50/lf of pile furnished

and $6.50/lf of pile driven. The contract provided boring logs and data and a disclaimer stating "These data are for information only, and may or may not represent the actual conditions which will be found when work is executed."

During the course of the contract, it was found that the pile would not act as a friction-type pile to achieve the required minimum bearing capacity at the "estimated" pile tip elevation, and the piles had to be driven deeper. The final quantities were 111,641 lineal feet of piling furnished and 98,966 lineal feet of piling driven. (A variation of 11% from the estimate) The contractor was compensated at the established unit rates for the final amounts.

The contractor claimed that the soil conditions encountered at the project site were materially different from the representations and drawings in the contract, and that the additional amount of piling required because of those changed conditions was extra work. (A type I DSC) The owner argued that the character of the work had not been changed and that the contractor was not due any compensation beyond the unit price under the terms of the contract.

In finding for the owner, the court held that:

> "an owner can provide bidders with estimates and other related information without incurring a risk of liability as to the accuracy of such information and estimates, only so long as their intent to do so is made clear by an express and unqualified disclaimer."[16]

The court found that the owner had a right to change the details of the work as it did and that was the situation for which the unit price provision was written.

In North Carolina, Thompson-Arthur Paving Company was awarded two highway construction contracts by the NC Department of Transportation to do grading

and paving work. Both contracts contained a minor contract item for "unclassified excavation". During the course of the contracts, periodic payments were made according to the unit price for unclassified excavation based on quantity estimates submitted by the contractor. When the projects were completed they were resurveyed and it was discovered that both projects had required less than the estimated amount of unclassified excavation. The owner subsequently reduced the amount of the contract by difference between the estimated and actual amount of unclassified excavation.

The contractor claimed the there was a breach of warranty because the amount of unclassified excavation underran the bid estimates and those underruns materially changed the character of the work as well as the cost to perform the work.

The contract specifically incorporated the NC Standard Specifications for Roads and Structures (SSRS) which provide in Article 104-4:

> "The contractor will be entitled to an adjustment in contract unit prices only as provided for in this article…No revision will be made to the contract unit price for any minor contract item which underruns the original bid quantities."[17]

The contractor argued that the above article does not bar recovery because they were using the basis of breach of warranty. As in Dravo, the court held that the estimates did not constitute warranties because the contract makes numerous references to the fact that the quantities contained in the bid proposals are only estimates. Article 102-5 of the SSRS also expressly stated this providing:

> "The quantities appearing in the proposal form are approximate only and are to be used for the comparison of bids. Payment to the contractor will be made only for the actual quantities of the various items that are completed and accepted in accordance with the terms of the contract."[18]

Based on these opinions, the court found that the contractor was not entitled to any additional compensation.

When is a variation "extra work"?

Another method for a contractor to recover under the provisions of the contract is to show that a variation in the estimated quantity constituted "extra work". However, an estimate with express disclaimers as to the accuracy of the estimate will make it more difficult for a contractor to prove that a variation constituted extra work. The following examples illustrate this.

In Blount Construction Co. v. The Housing Authority of the City of Athens, the contract was for the construction of a housing project and included a unit price for rock excavation in utility trenches. The contract also outlined a procedure for the measurement of rock whenever encountered.

The contractor submitted a claim for all of the rock that was excavated in the "general excavation" on the basis that all rock excavated was to be paid for as "extra work", although there were no contract provisions so stating.

The owner argued, and the court held, that the unit price for rock excavation was only for rock excavated from the utility trenches, and that the existence of rock in the general excavation was not extra work because it was in line with typical excavation in this type of construction. [19]

In APAC-Carolina vs. Greensboro – High Point Airport Authority, the contract was for the extension of a runway and construction of a taxiway. The contract included a unit price of $1.99 per cubic yard of unclassified excavation for an estimated

167,200 cubic yards. The contractor claimed that undercut work constituted "extra work" under the contract, and that it should receive additional compensation for such work. The owner argued that undercut work was not "extra work" as defined by the contract, because the contract expressly defined extra work as " an item of work not provided for in the awarded contract", and "an item of work for which no basis of payment has been provided...". Section 152-2.2(b) of the contract, "Undercutting", described the material included in this classification and provided the basis of payment. The contract also defined unclassified excavation as "excavation, disposal, placement, and compaction of all materials within the limits of the work required...". The plans also contained the following note:

> Materials encountered during construction that are determined by the engineer to be unsuitable for use in the sub-grade shall be removed by the contractor at the direction of the engineer. The materials removed will be paid for at the contract unit price bid for 'unclassified excavation'. Replacement materials will be considered 'unclassified excavation' and will be paid for as such.[20]

The court found that the undercut work did not meet the definition of "extra work" under the contract and therefore the contractor was entitled to the contract unit price of $1.99 per cubic yard.

Estimated quantity not explicitly stated

For a contractor to be entitled to recover due to a variation in estimated quantity, there does not have to be an explicit estimate. A contractor may recover under a differing site condition if an estimation of the amount of work shown in the contract varies materially.

In Stock and Grove, Inc. v. U.S., there was a lump sum contract was for the repair of a road in Alaska. The contract documents indicated that sufficient armor stone could be obtained from a quarry along a portion of the road that was designated as a type B quarry. Test results performed on the stone in this quarry were also provided to the bidders that supported the assumption that adequate stone was available to meet the specifications. The contract contained a standard "changes" clause as required by federal law, and stated that if the contractor elected to use a type B quarry, no adjustment would be made if the quantity of rock were insufficient to meet the needs of the project. The contract did not designate any type A quarries.

During the course of construction, the contractor discovered that the stone in the designated quarry would not meet the contract specifications, and an alternate source was approved and used to complete the contract. The contractor claimed a type I differing site condition because the "estimate" of the amount of material available at the designated quarry was insufficient for the project needs and caused an increase in the cost of the work. [21]

The owner argued that the contract explicitly stated that no contract adjustments would be made if the contractor chose a type B quarry and found an insufficient amount of material.

The court held that there was a type I differing site condition and that the contractor was entitled to compensation. The two main factors in this determination were: 1) That the test reports were furnished with experts stating that the designated quarry would suffice for the contract needs and 2) That no other quarry sources were

designated. These factors were sufficient for the court to determine that the contract did positively indicate that the necessary amount of armor stone would be available.

Summary

When a construction contract contains an estimated quantity, disputes concerning the provisions in the contract which govern variations are resolved according to the accepted rules of contract interpretation. The provisions are interpreted in a manner which give meaning to all parts of the contract, and are not meant to negate or replace the other provisions included in the contract.

In Federal construction contracts, the courts have interpreted the VEQ clause to mean that an equitable adjustment in the contract unit price for variations of more than 15% of the estimate are based solely on cost differences due to the change in quantity.

If a contract does not contain a provision specifying how variations are to be handled, the other provisions of the contract will govern. The courts have held that a variation in an estimated quantity does not mean that the contract can be rewritten. Recovery in these situations may be had under a DSC or changed conditions clause if it can be shown that the variation constituted a differing site condition. The courts have generally held that unless otherwise provided for, a 10-15% variation in an estimate is reasonable. Express disclaimers in the contract as to the accuracy of the estimate can make proving a differing site condition more difficult.

Chapter 3

Variations Outside Contractual Provisions

There are times when a contract is formed using an estimated quantity and the actual conditions vary from what was estimated to such an extent that the essence of the contract is changed. In an effort to avoid a breach of contract in these situations, each party attempts to interpret the contract in a way most favorable to its side. For example, an owner may choose to argue that the plain meaning of the word "estimate" implies that the contractor is under contract for the bid unit price, regardless of the actual quantity required to complete the work. This position was expressed in a decision by a court in a dispute involving dredging where the court held:

> Where a contract for a dredging project, at unit rates, states the yardage estimated as necessary to be dredged to complete the work, but provides that "the United States reserves the right to require the removal of such yardage as will complete the work, be it more or less than the quantity estimated", the words "more or less" must be given a more extensive meaning than in their ordinary use for denoting slight variations in estimated amounts, and the contract held to require the completion of the project.[22]

Conversely, a contractor may argue that the increase or decrease in the estimated quantity has altered the essence of the bargain to such an extent that the unit price for the work should be equitably adjusted. This position is captured in a decision in a dispute involving an estimated amount of excavation where the court held:

> A provision in specifications furnished to prospective bidder estimating quantities of work to be performed, and stating that contractor will be required to complete work whether the required quantities are more or less than the amounts estimated, means that estimates in invitations for bids are not guaranteed amounts but does not mean that provision in subsequently executed contract for modification to conform to unforeseen

> subsurface or latent conditions is to be canceled or that considerations of equity and justice are to be disregarded.[23]

This chapter examines the guidelines that the courts use to resolve disputes when this type of situation occurs because the actual quantity has exceeded what the parties intended when they entered the agreement.

Overview

When a variation in the estimated quantity exceeds the range established by the contract, it is possible for the injured party to obtain relief outside the provisions of the contract. Relief can also be obtained if the contract does not explicitly state a range and the variation exceeds a reasonable percentage considering the parties' original intent. One method used to seek relief is to prove that the character of the estimated quantity of work was misrepresented. This is similar to proving that there was a differing site condition, as discussed in the previous chapter, however, a misrepresentation can be shown when the contract does not contain a differing site condition or changed conditions clause. Another method is to show that the actual quantity varied from the estimate by such a large percentage that it constituted a mutual mistake.

This chapter begins by discussing when a variation can be considered a misrepresentation and a contractor can recover. Then it looks at how the courts view a mutual mistake and when is it applicable to a variation in the estimated quantity. Finally, it looks at how the concept of "pre-existing duty" is viewed when a contract contains an estimated quantity.

Comparison of misrepresentation and mutual mistake
when there is a variation in the estimated quantity

	Misrepresentation	Mutual mistake
Significant variation	√	√
Contractor had a right to rely	√	√
Both parties mistaken		√
Contractor misled	√	
Variation caused change in method/time	√	√
Reliance was justified	√	√

Table 3-1

Misrepresentation v. Mutual mistake

As can be seen in the table above, the factors necessary for proving that there was a misrepresentation or proving that there was a mutual mistake are very similar. The major difference is whether the party has to prove that he/she was misled or that both parties were mistaken. During the research for this thesis, disputes were reviewed where both arguments were made concerning the same variation. In both cases, for there to be recovery outside the provisions of the contract, there must be a reformation of the contract.

What is reformation of the contract?

Corbin on Contracts § 614 states that:

> Reformation of a written instrument will be decreed when the words that it contains do not correctly express the meaning that the parties agreed upon, as the court finds to be convincingly proved. The writing may omit a provision that they agreed should be put in; or it may contain a provision that they agreed to leave out or that was not in fact assented to.[24]

Reformation is a remedy to make a mistaken writing conform to existing expressions on which the parties agreed.[25] Reformation can occur in many situations. This chapter will only examine the guidelines used to determine when a variation in an estimated quantity justifies reformation. When dealing with the specific instance of when a variation in an estimated quantity allows reformation of the contract, this generally means the actual quantities of work differed to such an extent as to render the original agreement void. If the estimate had been accurate, the parties would not have struck the bargain that they did.

What constitutes misrepresentation?

One type of dispute where a contractor may seek a reformation of the contract is when there is a misrepresentation. The concept of what constitutes misrepresentation has been well defined by the courts. Corbin states that:

> If the mistake of law that induced the making or the performance of a contract by one party was caused by a fraudulent misrepresentation of the law by the other, or by his innocent misrepresentation if the relations of the parties are such as to make it reasonable for the one to rely on upon the representations of the other, the appropriate relief by rescission, restitution, or reformation will be given to the injured party.[26]

However, when the character of the estimated work is misrepresented by the contract documents, the contractor has a right to rely on those documents, and was damaged by doing so, the contractor has a valid claim for misrepresentation. This is true regardless of whether the estimated quantity was accurate or not.

Another type of misrepresentation that may be claimed is that the actual amount of work varied by such a large extent that the variation constituted a misrepresentation. For the purposes of this thesis, this situation will be discussed later in this chapter as a mutual mistake because the elements necessary for recovery are similar.

Since a claim of misrepresentation requires a positive statement of fact that proves to be untrue, variations in an estimated quantity rarely constitute a misrepresentation. In most cases, misrepresentation is claimed when the character of the work, not the quantity in the estimate, proves to be untrue. As to whether the character of the work was misrepresented, the same requirements for a claim of misrepresentation that are necessary for other portions of the contract are required with respect to the estimated quantity. These rules are listed in Appendix C. A comparison of two cases from the New York Court of Appeals illustrate the necessity of proving that the character of the work, and not just the quantity of work, was misrepresented.

In one case, Faber v. New York, there was a fixed-price contract to construct foundations for a bridge. The contract documents indicated that each caisson must be sunk to the depth shown on the plans or to the depth required for a firm foundation. There were other provisions in the contract, such as a prescribed method for cleaning the rock surface, which conveyed the intent that the foundations were to be on bedrock. The contract included a unit price for excavation (of earth) below the elevation shown on the plans in the event that the bedrock was deeper.

Upon construction, the elevation of the bedrock was found to be 8 – 9 feet closer to the surface than shown on the plans. Instead of redesigning the caissons, the

owner required the contractor to excavate the 2,274 cubic yards of solid rock to the elevation indicated on the plans. The contractor sought recovery for the misrepresentation.

The owner argued that a disclaimer in the specifications provided that "the contractor must assume the responsibility for the difficulties encountered in sinking the foundation to bedrock or into it to whatever depth shall be determined upon. The contractor may have access for information only to the results of borings which have been made…at or near the locations of the piers."

The court held that the excavation 8-9 feet into the bedrock was a misrepresentation and the contractor recovered the additional cost.[27]

In a similar case, Foundation Company v. New York, the contract was for the construction of a dam which required caissons to be sunk to bedrock. The contract was a unit price contract and included an estimate of 200 cubic yards of excavation below elevation 148. In order to reach bedrock, the contractor was required to excavate 556 cubic yards of material below elevation 148, and was paid the contract unit price for this work. The contractor claimed that the amount of excavation below elevation 148 was misrepresented on the plans and sought additional compensation because excavation below elevation 148 required a significantly more expensive method of work.

The contract stated that the elevation at which bedrock would be encountered was "approximate", but the boring results that the owner had used for design, which were not made part of the contract, were furnished to the contractor when requested.

The court denied the claim and held:

> A contract and specifications may contain representations as to existing physical conditions. If so, a bidder may rely upon them, even though it be provided that he shall satisfy himself by personal inspection and investigation as to their truth, where because of time or situation such investigation would be unavailing; or statements may be made on which the bidder, because of the language of the contract, cannot rely. He may have agreed that he will not. Then if they are made in good faith he takes the risk of their accuracy.[28]

A comparison of these cases demonstrates an important aspect of how a variation in an estimated quantity can be construed as a misrepresentation. Both cases were heard by the same court, the intent of both contracts was to excavate to bedrock and in both cases the parties were mistaken as to the actual conditions. The key difference is whether the misrepresentation was in relation to the estimated quantity, or to the nature of the work. In both contracts, the difficulties encountered in excavating to bedrock were placed on the contractor due to the disclaimers contained in the contract. However, in Faber, the court found that the contract did not intend to sink the caissons 8-9 feet into the bedrock, otherwise, a unit price for excavating bedrock would have been contracted for, therefore there was a misrepresentation. In Foundation, the court held that the contract specifically provided for excavation below elevation 148, and therefore, the fact that the contractor had to excavate deeper than estimated on the plans did not constitute a misrepresentation. The amount of the variation, 356 cubic yards, did not constitute a significant portion of the entire excavation and the contractor was only entitled to the contract unit price.

In some cases, a variation in an estimated quantity can change the character of the work. An example of this is illustrated in Peter Kiewit Sons' Co. v. U.S. In this case the contract was for the grading and extension of a runway and included a unit

price for earth moved. The plans indicated that the estimated amount of earth required was based on 700,000 cubic yards from the field, 1,600,000 cubic yards from a diversion channel, and 2,300,000 cubic yards of borrow. The contractor intended to submit a bid of 31.39, 51.23 and 29.77 cents per cubic yard respectively because of the differences in effort required for the different sources of material. The contract required bidders to submit a composite unit price which would be paid for the amount of earth moved regardless of where it came from, so the contractor submitted a composite bid of 37.476 cents per cubic yard based on a weighted average using the estimated quantities.

Once construction was begun, the finished grade was lowered which reduced the amount of borrow excavation by 750,000 cubic yards. Since this type of excavation was less expensive to perform, the contractor's composite unit price was no longer valid. The contractor claimed that this change constituted a mutual mistake and that they were entitled to an adjustment in the unit price.

In this case, the contractor's claim for additional compensation was allowed. In allowing the contractor's claim, the court made several observations:

> If, as alleged, the parties believed that the estimated proportions of the different kinds of excavation would prove out in the performance, it would appear that they would not have made the contract which they did make except for their mistake as to the facts. Such a mistake calls for a reformation, in equity, of the contract.[29]

The variation in the estimates, combined with the structure of the contract, significantly changed the character of the work for which the original unit price was bid.

In a contract with an estimated quantity, proving that a variation in the quantity was a misrepresentation by the owner can be more difficult if the language of the contract expressly provides for variations in the estimate. If the contract clearly places the risk of performance on the contractor, "no recovery can be had on the ground that the work was more expensive than the parties expected".

What is a Mutual Mistake?

When during the course of construction, a variation of such magnitude is discovered that the essence of the contract is materially changed, there can be recovery on the grounds of mutual mistake. 17A C.J.S. § 148 defines a mutual mistake as:

> One common to all parties, wherein each labors under the same misconception respecting a material fact, the terms of the agreement, or the provisions of the written instrument designed to embody such agreement.[30]

A mutual mistake is one common to both parties to a contact, each laboring under the same misconception. Under common law, "when a mutual mistake occurs, the contract is voidable". When a contract is "voidable", there is usually both a power to avoid and a power to validate.[31] The remedy is dependent on when the mistake is discovered. In cases where the mistake is in an estimated quantity, it will only be evident after the work is substantially completed, therefore the proper remedy is reformation vice rescission of the contract.

There is no set formula for figuring when a variation in an estimated quantity becomes a qualitative change in the scope of the contract and allows adjustment of the contract under the premise of a mutual mistake. In Saddler v. U.S., the design of a

levee was changed and increased the estimated quantity of material to be placed from 7,950 cubic yards to 13,000 cubic yards.

In ruling that this change was outside the scope of the contract, the court said:

> We do not attempt to set forth a mathematical definition by which any deviations in quantity from a contract must be measured. Obviously the differences between contract situations will admit of no such inflexible formula.[32]

An important aspect of all the cases reviewed where a significant variation in an estimated quantity allowed reformation of the contract based on a mutual mistake was the fact that more than just the quantity has to vary. The quantity variation must cause a qualitative change in the scope of the contract, such as a change in method or change in time, for it to be subject to reformation based on a mutual mistake.

Mistake requiring change in method

In State Road Department of Florida vs. Houdaille Industries (1970), the contract was to construct a road through the Florida Everglades. Part of the work included the removal of overburden, excavation of the muck, and placement of the embankment. The contract documents indicated that there were 408 cubic yards of muck to be moved and 622,968 cubic yards of embankment to be taken from a borrow canal to form the basis for the road.

The owner had spent 5 months surveying the area to determine the estimated quantities listed above, to include the 408 cubic yards of muck. After only 1.5 miles of clearing and grubbing, the contractor had already encountered quantities of muck significantly in excess of the estimated 408 cubic yards. The final quantities were

278,392 cubic yards of muck instead of the 408 shown in the plans and 827,750 cubic yards of embankment instead of the 622,968 cubic yards shown.

The soil conditions that existed were so materially different that significant changes were required in the work method used. The amount of muck encountered required the use of draglines working on mats instead of using bulldozers. It is apparent that this change in work method had a significant impact on unit costs. Instead of a bulldozer clearing approximately .6 acres per hour, the draglines could only clear approximately .1 acres per hour. Adding to this increase in difficulty was the fact that the owner still required the clearing and grubbing to be a separate operation from the removal of the muck. [33]

When the extent of the differing soil conditions was discovered by both parties, negotiations were held to determine new unit prices for the work. No agreement was reached at these negotiations, however, it was agreed to use the unit prices already established in the contract as progress payments with new estimated quantities.

The owner argued that these negotiations resulted in a change order to the contract and that the contractor was not entitled to damages. The court held that the actions of the parties supported the contractor's claim that this was not a change order because the owner did not execute or process the change as required and that it did not dispose of all the claims for an equitable adjustment by the contractor.

In Evergreen Amusement Corporation v. Milstead (1954), there was a lump sum construction contract entered into to clear and grade a theater site. Under the contract, the contractor agreed to supply necessary materials and perform the work needed to clear the theater site of timber, stumps and waste material, to "grade the site

as indicated on the plans"...It also provided that "At this contract price, no additional fill material will be substituted for unsuitable material found on the site."

The trial court found that both parties assumed at the time the contract was entered into, that the site could be graded merely by moving the earth from certain parts of it to other parts, and that no additional dirt would be needed. Both parties relied on a contour map that was prepared with the piles of debris on the site, which was later found to be inaccurate.

During the course of construction, when it was determined that the cuts and fills would not balance, an agreement was reached to bring in additional fill at the unit price of 68 cents per cubic yard. The owner denied that this agreement had been made, however, the court found written evidence of the agreement and found that the actions of the owner making progress payments which included a charge for the additional dirt supported the fact that an agreement had been made.

The owner argued that even if an agreement had been made, it was unenforceable because there was no consideration. The contract required the furnishing of all materials needed to complete the work.

The contractor points to a more specific statement in the contract, that "no additional material will be substituted for unsuitable material on the site."

The court held that there was a mutual mistake, and the contractor was entitled to be equitably compensated. It held:

> It is undenied that the owner and contractor both thought it to be a solid fact that the cuts and fills would balance. Certainly the discovery that outside fill dirt to the value of thousands of dollars – more than the whole of the original contract cost – would be needed to reach grade, was not

only evidence of mutual mistake but of revelation of unforeseen difficulty.[34]

Mistake requiring change in time

Another way a significant variation can be construed as a mutual mistake is on the basis of time of performance. If a variation in the estimated quantity significantly extends the time required and the contractor can demonstrate that the contract unit price does not include compensation for this additional time, the contractor may be able to equitably adjust the unit price.

In Davidson and Jones, Inc. vs. North Carolina Department of Administration (1985), the contract was to build a library addition. The contract contained an estimated quantity of 800 cubic yards of rock excavation for which the bid price was $55 per cubic yard. During construction, the contractor actually removed 3714 cubic yards of rock. The owner compensated the contractor for this amount at the contract unit rate, however, because of this additional rock, the contract was extended by approximately 6 months beyond the original completion date.

The contractor claimed two types of extra costs. The first was the direct costs of removing the extra rock and the second was the duration related costs due to maintaining the personnel and equipment on the project for the additional time.

The court upheld the rate of $55 per cubic yard, as specified in the contract. However, as to the duration related costs, the following was found.

The trial court found that the significant overrun in time was a direct result of the excess amount of rock that had to be excavated. Several important factors were considered in this decision. 1) That the excavation was on the critical path and the

contractor could not have been performing other work at the same time that would have shortened the duration. 2) That the contractor exceeded the planned efficiency for the rock removal – 3,714 cy removed in 34 weeks vs. a planned 800 cy in 8 weeks. 3) That all other construction activities were completed in the planned amount of time. 4) That the contractor made the necessary pre-bid inspection of the work site and there was no reason to believe that the information shown on the plans was inaccurate. 5) That the duration related costs being sought were included in the contractor's base bid and were based on the amount of total project time, not included as part of the $55 per cubic yard unit price. Based on these findings, the trial court held that there was a mutual mistake as to the quantity of rock to be excavated and that the contractor was entitled to receive equitable compensation for the "extra costs" associated with extending the contract duration.[35]

Although it has been previously stated that there is no set formula for determining the amount of variation that would constitute a mutual mistake, the supreme court of North Carolina upheld the trial court's ruling that there was a mutual mistake in this case. They based their decision on the fact that the amount of the overrun so greatly exceeded either party's expectation of how much time would be required to perform the work that it was outside the intentions of the variations clause. They held that:

> We do not agree that the clause allocated the risk of an overrun exceeding 400%.[36]

The court found that although some variation was to be expected, they agreed with the trial court that ten to fifteen percent would have been a reasonable variation.

When the provisions of the contract did not allow for the unit prices to be adjusted when the estimated quantities varied by more than the specified percentage, the courts have consistently required that it takes more than just a quantity difference to warrant reformation of the contract.

A 1989 decision from the Appellate division of the Supreme Court of New York ruled on what constituted a change outside the scope of the contract in Costanza Construction v. City of Rochester. In that decision, the court held that the increase in rock excavation from an estimated 200 cubic yards to over 600 cubic yards, in itself, did not entitle the contractor to anything beyond the bid unit price.

However, in a dissenting opinion in that case, one of the judges held that:

> Where, however, the differential between the estimated and actual quantities becomes disproportionate, courts have recognized that the unit price provision is not always adequate protection. There may be instances where unforeseen events are so different from those reasonably anticipated by the contracting parties that the contract is no longer viable.[37]

If the contractor had argued that the time required to complete project was extended because of the variation in the estimated quantity, and shown that the unit price for rock excavation did not include a portion of the necessary overhead, it is likely that recovery could have been had.

Mistake must be mutual

In order for there to be a reformation on the basis of a mutual mistake, the mistake must in fact be mutual. In Perini v. U.S., there was a contract for the construction of a spillway, powerhouse and switchyard and included an estimated

quantity for pumping water during construction. The estimated amount of water to be pumped was 323,000 units and 302,000 units for two different areas. During the course of construction the actual amount of water required to be pumped was 825,501 units and 6,600,818 units respectively. The contractor had bid a unit price of $.40 per unit.

When the extent of the overrun in the estimated quantity was realized by the Government, a change order was issued reducing the unit price to $.25 per unit and $.08 per unit respectively, based on the Changed Conditions clause of the contract.

The Government argued that a substantial variation from an estimated quantity constitutes an "unknown physical condition of an unusual nature differing materially from those ordinarily encountered" and, therefore, amounts to a changed condition.

The contractor argued that they did not rely on the estimate in the contract to calculate their bid because the plans accurately depicted that there would be substantially more water and their own previous experience and site investigation reinforced this.

The court found that there was no mutual mistake of fact and allowed the contractor to recover under the provisions of the contract. The court held:

> The situation presented by the facts is one where the estimated quantities contained in the contract were grossly understated by the Government. The contractor recognized that the estimate was unduly low and did not rely upon it…it has never been the purpose of [the Changed Conditions] article in the contract to protect a party from the results of its own miscalculations.[38]

Rule of Pre-existing duty

In general, the right to, and amount of, a builder's compensation, under a building and construction contract, are controlled by the terms of the contract. In case of a full performance the builder is generally entitled to the amount fixed by the contract. If, however, there is no special agreement, it is the reasonable value of the services rendered and the materials furnished by the builder. [39]

The general rule of "pre-existing duty" is that a promise to pay additional compensation for the doing of that which the promisee is already legally bound to do or perform, is insufficient consideration for a valid and enforceable contract. [40]

In lump-sum contracts which contain estimated quantities, the question becomes when does a variation from that estimate entitle a contractor to additional compensation and override the rule of "pre-existing duty".

In Pittsburgh Testing Laboratory vs. Farnsworth and Chambers Co. there was a subcontract where Pittsburgh Testing agreed to do all of the testing and inspection of materials required under a contract between Farnsworth and a third party for the construction of concrete ramps and runways in Oklahoma. Farnsworth estimated that the job would be complete in seven months working 60 hours per week. The contract was a lump sum contract, payable in 7 monthly installments (of $3,492.85). There was no guarantee of a completion date or hour work week in the contract.

Prior to completion of the contract, it became apparent that the contract would not be completed on time due to the moving of 1,200,000 tons of dirt, rather than the 600,000 tons originally estimated. Upon this realization, an oral agreement was entered into to compensate for the extended time at a rate of $3,492.85 per month, plus

time and one half for all man-hours worked over sixty hours per week. The contract was completed approximately 6 months later than originally estimated, and at that time Farnsworth repudiated the oral agreement.

The general rule, as previously stated, is that a promise to pay additional compensation for the doing of that which the promisee is already legally bound to do or perform, is insufficient consideration for a valid and enforceable contract. However, in this case, the court ruled in Pittsburgh Testing's favor because of the 'unforeseeable difficulties exception', under which the courts have recognized the equities of a promise for additional compensation based upon extraordinary and unforeseeable difficulties in the performance of the subsisting contract.

In this case, the performance of the work took more than twice as long as the parties estimated, Pittsburgh's primary cost was expensive skilled labor, and the consideration for the contract was necessarily based upon the estimated time required for performance.[41]

In Nolan Bros. Inc vs. U.S. (1959), a lump sum sub-contract was entered into between Altus Construction and Nolan Brothers for site work on an Air Force Base in Oklahoma. During the bidding process, Nolan supplied Altus with a set of plans and specifications and an agreement was reached between the two parties on a price if Nolan was the successful low bidder. Subsequent to this agreement, but prior to contract award, the plans were altered and the estimated amount of earthwork increased from 649,000 cubic yards to over 1,000,000 cubic yards. Altus was not made aware of this change.

Altus only became aware of the change after executing the lump sum sub-contract. Upon discovering the change and after subsequent discussions with Nolan, Nolan agreed to compensate Altus for the reasonable value of the additional work.

Upon completion of the contract, Nolan denied payment for the additional work and argued that Altus was under contract to perform the earthwork for the original contract price. Altus claimed on the basis that services had been performed and that they were owed equitable compensation. Upon review, the appellate court found for Altus and held that the complaint:

> Did allege with particularity facts and circumstances constituting a unilateral mistake of fact on the part of Altus of impelling importance relating to the very essence of the subcontract; alleged facts disclosing that such unilateral mistake did not arise out of gross negligence on the part of Altus; alleged that Nolan knew of such unilateral mistake at the time of the signing of the subcontract; and alleged in substance that the completion of the dirt work according to the revised plans for the lump sum specified in the subcontract would result in Nolan reaping an unconscionable gain. [42]

In Mobile Turnkey Housing, Inc. vs. CEAFCO, Inc. the contract was a housing project and CEAFCO was sub-contracted to do the site work and grading. The sub-contract was a lump sum contract, however it contained a unit price of $.65 per cubic yard if any undercutting is required as a result of unsatisfactory material below the surface. Soil tests results were supplied which indicated that there were no unsuitable soil conditions at the worksite.

During the course of construction, the sub-contractor encountered soil that could not be compacted to the required density, and could only correct the situation by

bringing in borrow fill. The sub-contractor ceased work on the project until an oral agreement was reached in which the contractor agreed to bear the added cost.

Upon completion of the project, CEAFCO submitted a claim for the additional expenses orally agreed to. In denying this claim, the court ruled that CEAFCO contracted to do the work regardless of any soil conditions that might be encountered and the provision of the contract which provided for the payment of an additional sixty-five cents per cubic yard for undercutting was negotiated for this very contingency. The court stated:

> Where the refusal to perform and the promise to pay extra compensation for the performance of the contract are one transaction, and there are no exceptional circumstances making it equitable that an increased compensation should be demanded and paid, no amount of astute reasoning can change the plain fact that the party who refuses to perform, and thereby coerces a promise from the other party to the contract to pay him an increased compensation for doing that which he is legally bound to do, takes an unjustifiable advantage of the necessities of the other party. Surely it would be a travesty on justice to hold that the parties so making the promise for extra pay were estopped from asserting that the promise was without consideration. A party cannot lay the foundation of an estoppel by his own wrong,' where the promise is simply a repetition of a subsisting legal promise. There can be no consideration for the promise of the other party, and there is no warrant for inferring that the parties have voluntarily rescinded or modified their contract. The promise cannot be legally enforced, although the other party has completed his contract in reliance upon it.[43]

The two prior examples demonstrate the difference between something that was more difficult than contemplated and something that was not contemplated at all, or an "unforeseen difficulty". In Altus, there was an unforeseen difficulty because Altus was not aware of the fact that the estimate had increased by over 50% when it entered the contract. CEAFCO, on the other hand, was aware that there may be some

undercutting required, they simply wanted additional compensation because it was more difficult than they imagined.

In Guilford Yacht Club Association vs. Northeast Dredging (1981), there was a contract to dredge a channel. The contract contained an estimated 18,000 cubic yards of material to be dredged and the unit price was fixed at $4.33 per cubic yard. (The unit price was calculated by dividing the bid price of $78,000 by 18,000 cubic yards.)

During the course of the work, when it was discovered that the original estimate was lower than what would be required, compensation at the rate of $4.33 per cubic yard for amounts above the 18,000 cubic yard estimate was agreed upon.

Prior to completing the dredging, the contractor stopped work because the necessary permits had expired. The permits were obtained on the basis of the time required to dredge approximately 18,000 cubic yards. Both parties submitted claims upon completion of the contract. The contractor claimed payment for the additional 15,800 cubic yards of dredging at a unit price of $4.33 per cubic yard, and the owner claimed that the contractor breached the contract by not completing the work and asked for liquidated damages.

The trial court found for both parties. The appellate court upheld this verdict. The owner argued that if the contractor breached the contract, no entitlement could be found and that liquidated damages should be enforced.

The court found that there was an enforceable agreement to compensate the contractor at the unit price of $4.33 per cubic yard for the material dredged in excess of 18,000 cubic yards, because at the time the contract was formed, neither party foresaw that over 38,000 cubic yards would have to be removed. When this fact was

discovered, the owner's promise to compensate the contractor for the additional material was enforceable based on 2 conditions:

- The conditions giving rise to the promise of additional consideration were not anticipated by the parties at the time of the original contract, and
- Those conditions made performance of the original contract unusually difficult.[44]

Summary

When a dispute arises because an estimate has varied significantly from what was expressed in the contract, recovery can be had outside the provisions of the contract. The two methods for accomplishing this are proving a misrepresentation or proving there was a mutual mistake and equity demands that compensation is due the injured party.

When seeking to prove a misrepresentation, recovery is likely if the contractor can show that the character of the work was misrepresented.

When seeking to show that a mistake was mutual, there are several factors which must be present. The mistake must in fact be mutual. The courts have ruled that they will not rewrite the contract in the case of unilateral mistakes. Also, a variation in the quantity alone is not enough to warrant a reformation of the contract based on a mutual mistake. While relying on an erroneous estimate may in fact be mutual, if the contract does not provide for adjustment of the unit price when the variation exceeds a certain percentage, the party requesting the change must show that the variation caused either a change in the required method or that he/she was damaged by the increase/decrease in quantity.

When the contract is a lump sum contract which contains an estimated quantity, recovery can be had if the contractor can show that there was an "unforeseeable difficulty" caused by a significant variation in the estimated quantity.

This is not to say that all mistakes made by a party to a contract are correctable. If the risk of performance has been expressly placed on one party, then there may be no recovery for a unilateral mistake.

Chapter 4

Summary and Conclusions

This thesis has met its objective and provides the guidelines used by the courts to determine the resolution of a dispute involving a variation in an estimated quantity. These guidelines will allow construction professionals to resolve disputes involving a variation in an estimated quantity prior to litigation. They will also assist construction professionals in structuring a contract in a manner that will accomplish the intended work while reducing the likelihood of litigation.

These guidelines were determined by reviewing over 40 appellate cases that dealt with variations in estimated quantities, as well as numerous legal treatises. The guidelines that are outlined in this thesis were applied consistently throughout the research material.

Summary

When an owner has included an estimated quantity of work as part of a construction contract, there are two categories under which disputes resulting from variations in that estimate can be handled. The first is to clearly express in the contract provisions the procedures for dealing with any variations. The rules the courts use to resolve dispute with-in the contract provisions are discussed in chapter 2. Since the reason for using an estimated quantity is that the actual conditions are not known, there is the possibility that the actual conditions will differ significantly from the estimate. Chapter 3 discusses the methods the courts use to resolve disputes in these situations.

Figure 4-1 below provides an overall guide to determining how to handle a dispute and under what premise recovery would be most likely.

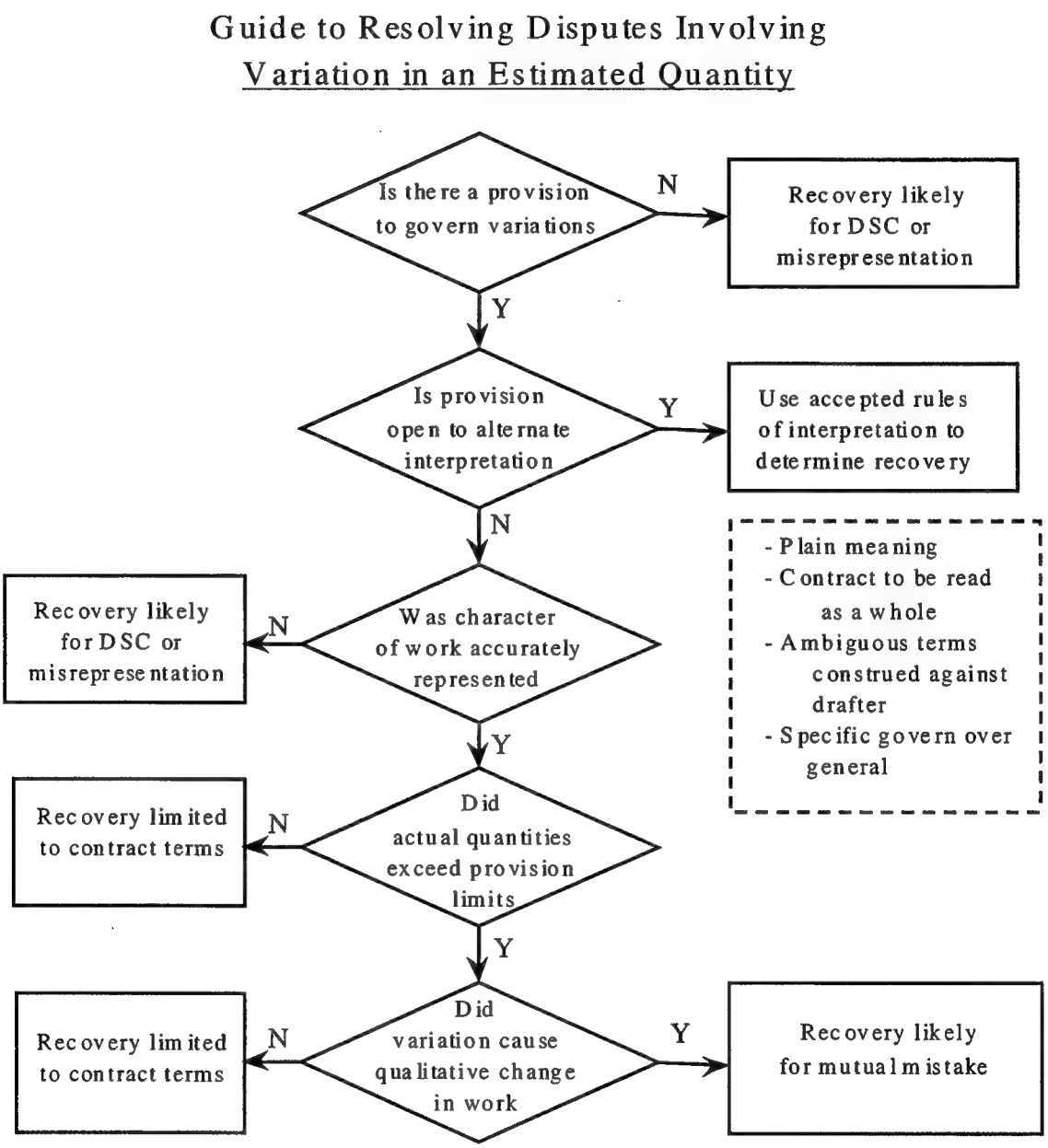

Figure 4-1

Resolution with-in the contract provisions

When a dispute over a variation in an estimated quantity arises, the first rule is to determine if the contract provides for the occurrence. If the contract provides a provision that states how variations from the estimate will be handled, the accepted rules of contract interpretation are applied to that provision to resolve the dispute according to its terms. The intentions the parties entered into the contract under will be determined by the language of the contract and by their actions during performance. Terms will be given their plain meaning and the provision will be interpreted in a way that does not negate other parts of the contract. The courts have consistently ruled that a provision governing variations will not replace or negate any other provision of the contract, specifically a differing site condition or changed conditions clause. The guidelines for dealing with variations that exceed the limits in the provision are discussed in detail in chapter 3 and summarized later in this chapter.

If the contract contains an estimated quantity, but does not contain a provision for dealing with variations, there can still be recovery for a variation under the differing site or changed conditions clause. It is unlikely that a variation with-in 10-15% of the estimate would be considered a differing site condition because the courts have consistently held that this range of variation is not unreasonable, but is precisely the reason an owner would elect to use an estimated quantity in the contract. In order to adjust the contract unit price for the quantities over or under the estimate, a contractor must prove that there was a differing site condition caused either by the variation or the character of the work. Simply varying from the estimate is not enough in itself to warrant adjusting the unit price to something other than what was bid. For

variations significantly higher than that, a contractor may be able to recover under the premise of mutual mistake, the rules for which are discussed in chapter 3.

In Federal construction contracts, the Variation in Estimated Quantity clause is required by law to be included in contracts with estimated quantities and the courts have interpreted it. Their interpretation is that the contract price is applicable for the quantities with-in 15% of the estimate as the clause states, and for variations exceeding that either party may request an adjustment in the unit price. The adjustment must be based on the difference in the costs of performing the estimated quantity and the costs of performing the excess quantity. The courts have held that the bid price is irrelevant.

Resolution outside the contract provisions

When an estimate in a contract is grossly inaccurate, a contractor may recover outside the bid price if there is justification for a reformation of the contract. In order for reformation to be warranted in the case of a variation in the estimated quantity, there must be a misrepresentation or a mutual mistake.

If the character of the work is misrepresented in the contract documents, and the contract does not have a differing site or changed conditions clause, a claim for misrepresentation is most appropriate. The rules used to determine a misrepresentation concerning a variation in an estimated quantity are the same as for other misrepresentation disputes. One instance where a variation in the quantity could be considered a misrepresentation is in the case of a unit price bid that is based on several estimated quantities. Significant variations in the estimates in this type of situation can upset the composition of work represented by the unit price, thereby changing the

character of the work and the contract can be reformed based on a claim of misrepresentation.

The other method for seeking relief outside the contract provisions is to show that there was a mutual mistake that warrants reformation of the contract. When the estimated quantity varies significantly, it is likely that there was a mutual mistake, however, in order for there to be an adjustment in the contracted unit price, the courts have generally held that a quantitative variation alone was not enough. In order for there to be recovery, the quantitative change had to have caused a qualitative change in the work. Two common indications that there has been a qualitative change because of a significant variation are that a contractor is forced to alter the work method or the contract performance period is significantly extended.

While it may seem inequitable to force a contractor to honor a bid price if there has been a mutual mistake, each side does have remedies. If the variation causes an increase in the contractor's costs, it is likely that a claim of mutual mistake will result in a reformation of the contract and the contractor will be fairly compensated for the value of the additional work. However, reformation is not meant to increase or decrease the contractor's profit position on the work that was in the original estimate. This is an equitable solution, assuming that the contractor's original bid is accurate. As for the owner, he/she is being compensated for the additional cost by having the additional work performed. If the situation dictates, a change order or modification can be issued adjusting the scope of the project.

The final method for recovery outside the contract provisions is when a contract is a lump sum contract and contains an estimated quantity. In this case, when

there is a significant variation from the estimate, a contractor can recover despite the argument that he/she had a pre-existing duty to perform the work regardless of the actual conditions. The courts have held that in cases where the estimate varies significantly from what was contracted for, there is an "unforeseeable difficulties" exception that can allow the damaged party relief.

Conclusion

Based upon this thesis, it is concluded that rules used by the courts to resolve disputes over variations in estimated quantities are generally consistent. There were some minor variations noticed during research between different states and between public and private contracts, but those differences can be attributed to the different language in the contracts. The guidelines in this thesis can assist construction professionals in avoiding litigation over variations in estimated quantities. Being aware of how the courts will interpret a contract can assist an owner in structuring the contract to convey the proper intent in the case of variations in an estimated quantity and it can assist a contractor in assessing the risk involved in the contract and allow he/she to properly account for that risk.

Recommendations for Further Research

The following areas are recommended for further research.

1. Research to determine if using an estimated quantity obtains a "best price" for owners.
2. Research to determine if construction contracts could be structured to provide a "maximum" and "minimum" price for estimated quantities.
3. Research to determine if construction contracts could contain a schedule of unit prices for various ranges of an estimate.

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27. **Faber v. City of New York**, 118 N.E. 609 (1918).

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Appendix A

Contract Clauses

Federal Variation Clause

11.702 -- Construction Contracts.
Construction contracts may authorize a variation in estimated quantities of unit-priced items. When the variation between the estimated quantity and the actual quantity of a unit-priced item is more than plus or minus 15 percent, an equitable adjustment in the contract price shall be made upon the demand of either the Government or the contractor. The contractor may request an extension of time if the quantity variation is such as to cause an increase in the time necessary for completion. The contracting officer must receive the request in writing within 10 days from the beginning of the period of delay. However, the contracting officer may extend this time limit before the date of final settlement of the contract. The contracting officer shall ascertain the facts and make any adjustment for extending the completion date that the findings justify.

11.703 -- Contract Clauses.
(a) The contracting officer shall insert the clause at 52.211-16, Variation in Quantity, in solicitations and contracts, if authorizing a variation in quantity in fixed-price contracts for supplies or for services that involve the furnishing of supplies.

(b) The contracting officer may insert the clause at 52.211-17, Delivery of Excess Quantities, in solicitations and contracts when a fixed-price supply contract is contemplated.

(c) The contracting officer shall insert the clause at 52.211-18, Variation in Estimated Quantity, in solicitations and contracts when a fixed-price construction contract is contemplated that authorizes a variation in the estimated quantity of unit-priced items.

52.211-18 -- Variation in Estimated Quantity.
As prescribed in 11.703(c), insert the following clause in solicitations and contracts when a fixed-price construction contract is contemplated that authorizes a variation in the estimated quantity of unit-priced items:

Variation in Estimated Quantity (Apr 1984)

If the quantity of a unit-priced item in this contract is an estimated quantity and the actual quantity of the unit-priced item varies more than 15 percent above or below the estimated quantity, an equitable adjustment in the contract price shall be made upon demand of either party. The equitable adjustment shall be based upon any increase or decrease in costs due solely to the variation above 115 percent or below 85 percent of the estimated quantity. If the quantity variation is such as to cause an increase in the time necessary for completion, the Contractor may request, in writing, an extension of time, to be received by the Contracting Officer within 10 days from the beginning of

the delay, or within such further period as may be granted by the Contracting Officer before the date of final settlement of the contract. Upon the receipt of a written request for an extension, the Contracting Officer shall ascertain the facts and make an adjustment for extending the completion date as, in the judgement of the Contracting Officer, is justified.

(End of Clause)

AIA Clause
General Conditions of the Contract for Construction
(AIA Doc A201-1997)

4.3.10 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially change in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

EJCDC Clause
Standard General Conditions of the Construction Contract

11.03 Unit Price Work

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contact Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of paragraph 9.08.
B. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

C. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
2. there is no corresponding adjustment with respect any other item of Work; and if Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

Appendix B

Differing Site Condition Rules

What did the contract indicate?

The contract must estimate the amount of work. Contracts which do not estimate the amount of work shift the risk of performance to the contractor.

This can either be through an explicit statement or can be implied through other contract notes.

Were conditions different from those indicated?

The character of the work was different than what was indicated or the variation exceeded a reasonable amount.

The variation caused a change in work methods.

The character of the work was different than generally encountered in this type of work.

Was the contractor misled?

The contractor must have relied on the estimate.

Was there justified reliance?

Contract as a whole.

Other provisions explicitly stating how variations will be handled must be considered.

Explicit disclaimers as to the accuracy of the estimate must be considered.

Appendix C

Misrepresentation Rules

(When contract estimate is inaccurate)

Does the contract contain a DSC clause?

Recovery under a DSC clause is recommended to be tried first.

Was there a positive representation?

The estimate furnished must be a positive representation of what can be expected.

- Exculpatory clauses and disclaimers
  Only express, unqualified and specific disclaimers will negate reliance on representation furnished in contract.

Was there an intent to deceive?

If fraud is involved, the contractor is likely to recover.

Did the conditions differ from those represented?

The actual conditions must differ materially from those represented.

Was the contractor misled?

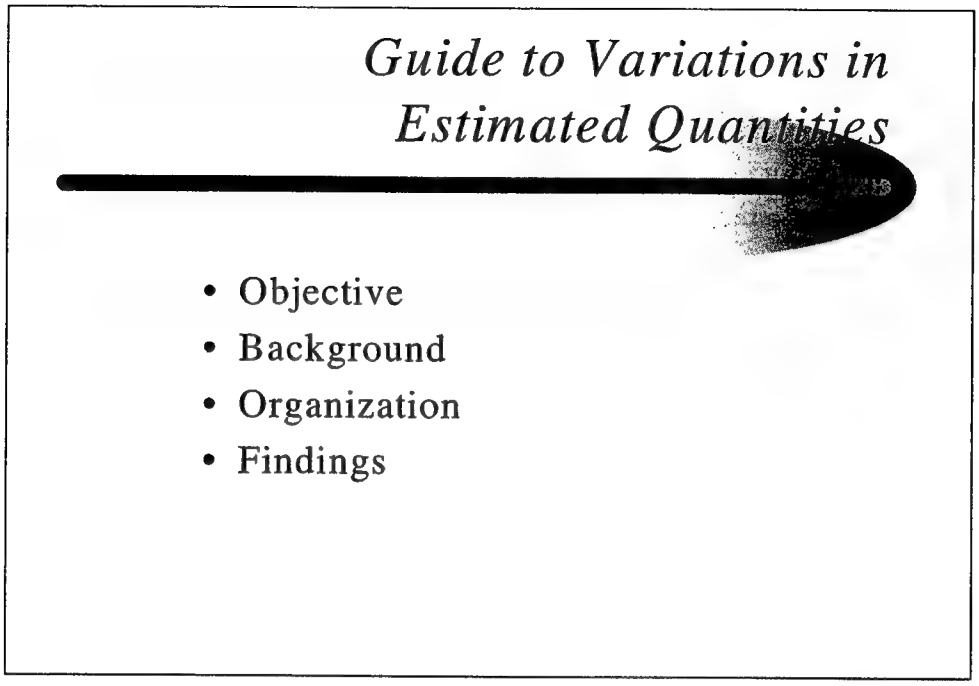
The contractor must have been misled and entered into a bargain for other than what he/she would have had the actual conditions been known.

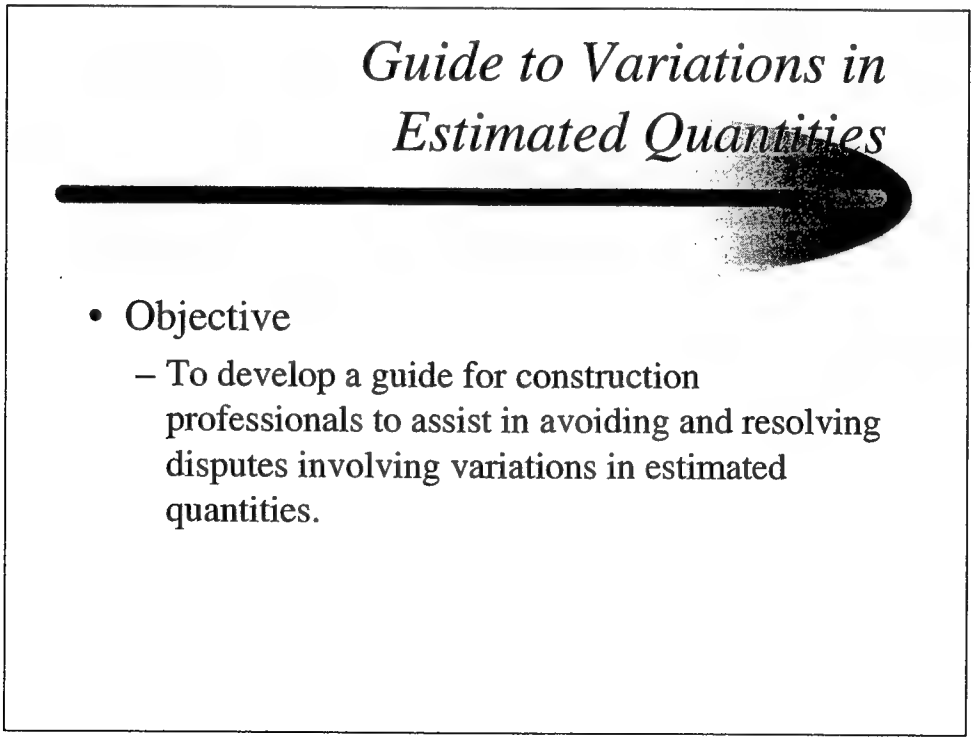
Was reliance on the information justified?

There may be information that would reduce reliance on the representation. The contractor cannot claim he/she was damaged by information he/she was not justified in relying on.

Appendix D

Presentation Slides





Guide to Variations in Estimated Quantities

- Using Contract Provisions
  - Variation provision
    - Standard rules of contract interpretation
  - Differing site condition clause
  - Changes clause
- Outside Contract Provisions
  - Misrepresentation
  - Mutual Mistake
  - Rule of Pre-existing Duty

Guide to Variations in Estimated Quantities

- Background
  - Used when exact quantities are unknown
    - Limited site access
    - Limited investigation time
    - Limited funding
    - Industry practice
  - Bids evaluated on common basis
  - Maximize use of available funding

Guide to Variations in Estimated Quantities

- Background (cont)
  - Options for allocating risk
    - No investigation
    - Limited investigation - use disclaimers
    - Limited investigation - use unit prices and actual quantities

Guide to Variations in Estimated Quantities

- Public contracts
  - Federal contracts required to use VEQ clause
  - Other public agencies have similar clauses
- Private contracts
  - Free to contract according to own terms

Guide to Variations in Estimated Quantities

- Contract variation provision
  - Use accepted rules of contract interpretation
    - Terms given their plain meaning
    - Contract read as a whole
    - Ambiguous terms construed against the drafter
    - Specific provisions govern over general
  - Provision not meant to negate or replace other provisions

Guide to Variations in Estimated Quantities

- Federal VEQ clause interpretation
  - Adjustment of the unit price requested by either party outside 85 - 115% of estimate
  - Adjustment must be based on change in unit cost due solely to variation
  - Landmark case Victory v. U.S. (1975)

Guide to Variations in Estimated Quantities

- Other contract provisions
  - DSC clause
    - Must prove that DSC existed
      - Quantity variation alone is not sufficient
  - Changes clause

Guide to Variations in Estimated Quantities

- Outside contract provisions
  - Misrepresentation
  - Mutual mistake
  - Pre-existing duty

Guide to Variations in Estimated Quantities

- Misrepresentation
  - Applicable when character of work was misrepresented (contract does not contain DSC clause)
  - Quantity variation can cause misrepresentation in composite bid

Guide to Variations in Estimated Quantities

- Mutual mistake
  - Significant variation
  - Qualitative change in work
    - Method
    - Time
  - Quantity variation alone not enough to allow adjustment of unit price

Guide to Variations in Estimated Quantities

- Pre-existing duty
  - Disputes common in lump-sum contracts with estimated quantities
  - 10-15% variation held to be reasonable
  - "Unforeseeable difficulties exception" Pittsburgh Testing Lab v. Farnsworth and Chambers (1958)